Technical Proposal CP058683

To

STATE OF MONTANA

For

REQUEST FOR PROPOSAL
#HWY-307040-RP

Determine Current Rates of Motor Fuel Tax Evasion in the State of Montana

From

Battelle
The Business of Innovation

March 25, 2004

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SECTION 1: PROJECT OVERVIEW AND INSTRUCTIONS

1.0 PROJECT OVERVIEW

Battelle understands and will comply.

1.1 CONTRACT TERM

Battelle understands and will comply. Battelle's proposed period of performance is July 1, 2004 – October 31, 2005 (16 months).

1.2 SINGLE POINT OF CONTACT

Battelle understands and will comply.

1.3 DEFINITION OF TERMS

Battelle understands and will comply.

1.4 REQUIRED REVIEW

1.4.1 Review RFP

Battelle understands and will comply.

1.4.2 Form of Questions

Battelle understands and will comply.

1.4.3 State's Answers

Battelle understands and will comply.

1.5 GENERAL REQUIREMENTS

1.5.1 Acceptance of Standard Terms and Conditions/Contract

Battelle understands and will comply.

1.5.2 Resulting Contract

Battelle understands and will comply.

1.5.3 Mandatory Requirements

Battelle understands and will comply.

1.5.4 Understanding of Specifications and Requirements

Battelle understands and will comply.

1.5.5 Prime Contractor / Subcontractors

Battelle understands and will comply.

1.5.6 Offeror's Signature

Battelle understands and will comply. Please see the enclosed authorized signature.

1.5.7 Offer in Effect for 120 Days

Battelle understands and will comply. Battelle's proposal is in effect for 120 days from March 25, 2004.

1.6 SUBMITTING A PROPOSAL

1.6.1 Organization of the Proposal

Battelle understands and will comply.

1.6.2 Failure to Comply with Instructions

Battelle understands and will comply.

1.6.3 Multiple Proposals

Battelle understands and will comply.

1.6.4 Copies Required and Deadline for Receipt of Proposals

Battelle understands and will comply.

1.6.5 Late Proposals

Battelle understands and will comply.

1.6.6 Addressing of Proposals

Battelle understands and will comply.

1.7 COSTING OF A PROPOSAL

1.7.1 State Not Responsible for Preparation Costs

Battelle understands and will comply.

1.7.2 All Timely Submitted Materials Become State Property

Battelle understands and will comply.

SECTION 2: RFP STANDARD INFORMATION

2.0 AUTHORITY

Battelle understands and will comply.

2.1 OFFEROR COMPETITION

Battelle understands and will comply.

2.2 RECEIPT OF PROPOSALS AND PUBLIC INSPECTION

2.2.1 Public Information

Battelle understands and will comply.

2.2.2 Procurement Officer Review of Proposals

Battelle understands and will comply.

2.3 CLASSIFICATION AND EVALUATION OF PROPOSALS

2.3.1 Initial Classification of Proposals as Responsive or Nonresponsive

Battelle understands and will comply.

2.3.2 Determination of Responsibility

Battelle understands and will comply.

2.3.3 Evaluation of Proposals

Battelle understands and will comply.

2.3.4 Completeness of Proposals

Battelle understands and will comply.

2.3.5 Opportunity for Discussion/Negotiation and/or Oral Presentation/ Product Demonstration

Battelle understands and will comply.

2.3.6 Best and Final Offer

Battelle understands and will comply.

2.3.7 Evaluation Committee Recommendation for Contract Award

Battelle understands and will comply.

2.3.8 Request for Documents Notice

Battelle understands and will comply.

2.3.9 Contract Award

Battelle understands and will comply.

2.4 STATE'S RIGHTS RESERVED

Battelle understands and will comply.

2.5 NON-DISCRIMINATION NOTICE

Battelle understands and will comply.

SECTION 3: SCOPE OF PROJECT

3.0 PURPOSE

Battelle understands and will comply.

3.1 SCOPE

The Battelle Team's general approach and understanding of this project is documented in the Proposed Work Plan (4.1.3). References are included in Section 4.1.1 and relevant experience of the Battelle Team is included in Section 4.1.2. The Battelle Team does not plan to include an IT component to the research program outlined in Section 2.0. The proposed implementation plan is included in Section 4.1.3.

3.2 TASKS

The Battelle Team's research approach, by task, is included in the Proposed Work Plan (Section 4.1.3).

3.3 MEETINGS AND REPORTS

The Battelle Team plans to deliver monthly progress reports indicating the tasks undertaken during each month, progress made and percent of each task completed. The monthly progress reports are noted in the proposed project schedule in Section 4.1.3. The Battelle Team has included three trips in the proposed work schedule and budget (budget included in Section 5.2): one trip for the kickoff meeting, the second for a briefing to be delivered following the conclusion of Task 6, and the final trip for presenting the final report. For each proposed meeting, the Battelle Team will prepare an agenda and meeting notes. At a minimum, the proposed Project Manager will attend all meetings.

SECTION 4: OFFEROR QUALIFICATIONS

4.0 STATE'S RIGHT TO INVESTIGATE AND REJECT

Battelle understands and will comply.

4.1 OFFEROR INFORMATIONAL REQUIREMENTS

Responses to each of the requirements called for in the sub-sections follow.

4.1.1 References

Following are three references that are using services of the type proposed in the RFP.

Reference 1
Company Name: Internal Revenue Service
Location Where Services were Provided: Completed for the IRS in Washington, D.C., in Richland, Washington
Contact Name: Richard Stiff
Customer's Telephone Number: 202-622-5521
Date Service was Provided: October 2000 to present
Description of the Service Provided:

For the Motor Fuel Excise Tax Division of the Internal Revenue Service (IRS), the Battelle Team developed technology aimed at determining the content of liquid cargo on tankers entering at U.S. borders in order to determine misreporting of motor fuel entering the country, and conducted analysis of producer, terminal and distributor motor fuel data necessary for constructing a national motor fuel tracking system. Furthermore, Battelle was asked by the IRS to develop structural and statistical models that (1) predict what fuel excise tax revenues should be collected based on economic activity; (2) detect unexpected trends in tax collection that might require further investigation; and (3) detect possible historical under-collection of motor fuel excise taxes. Battelle prepared a report documenting the Battelle Gasoline Excise Tax Model, which is the first installment of an all-fuels model. The model will allow the user to understand the underlying causes of changes in fuel consumption and excise tax revenues and to identify and explain unusual changes in consumption levels that could represent potential occurrences of evasion. Using the Gasoline Excise Tax Model, quarterly fuel consumption for on-highway use has been estimated for three categories of vehicles: automobiles and motorcycles, light trucks and SUVs, and heavy trucks using three-stage least squares analysis. Supply and demand equations for vehicle miles of travel (VMT) for all three vehicle categories are estimated. Demand for VMT is based upon economic variables such as gross domestic product (GDP), non-farm employment, and the price of gasoline. Fuel efficiency equations are estimated based on CAFE standards and lagged endogenous variables. Dividing VMT by fuel efficiency by vehicle type provides fuel consumption. Based on data obtained from surveys and tax reports, fuel was divided into gasoline, gasohol, and distillate according to vehicle class and allocated to taxable and non-taxable categories to determine excise tax collections.

Reference 2
Company Name: Federal Highway Administration
Location Where Services Were Provided: Columbus, Ohio
Contact Name: Tom Howard
Customer's Telephone Number: 202-366-0170

Date Service Was Provided: August 1, 2001 to May 31, 2004
Description of the Service Provided:

Battelle reviewed and documented the fuel tax attribution process and examined the impacts of the changes implemented by FHWA as part of the continuous improvement model on the fuel tax attribution process. The study focused on evaluating the consistency and reliability of the procedures and models used in the fuel tax data analysis leading to attribution. Battelle reviewed and documented the fuel tax attribution process and FHWA's instructions or guidelines to the states regarding reporting of fuel tax data. Battelle also evaluated the potential impacts of changes implemented by FHWA on the fuel tax data acquisition and analysis process, such as the use of Smart Input Tool by the states to submit fuel tax data, and oversight process to improve the quality of data submitted to the FHWA. A structured evaluation framework was used that identified four goal areas: legacy system performance, data process quality, risk management, and institutional issues as they relate to the fuel tax attribution process.

Reference 3
Company Name: Federal Highway Administration
Location Where Services Were Provided: Columbus, Ohio and Washington, DC
Contact Name: Jim March
Customer's Telephone Number: 202-366-9237
Date Service Was Provided: 1995-1997
Description of the Service Provided:

Battelle conducted a range of studies to support the Federal Highway Administration's Highway Cost Allocation Study. The team evaluated and refined the vehicle classification and weight distribution systems used by FHWA; developed a common rationale for allocating diverse types of residual costs, updated the FHWA Fortran program (NEWPAV) for allocating new pavement costs by incorporating recent adjustments to pavement design procedures and other program enhancements, improving needed data, and recommending application parameters for FHWA's use of the model; developed an improved set of distress and performance models for incorporation into the National Pavement Cost Model (NAPCOM), which focuses on pavement deficiencies; explored a life cycle approach for pavement cost allocation and analysis; documented bridge cost allocation models; developed and documented highway expenditures; developed an approach to multimodal cost allocation; expanded the results of the Federal analysis to provide a comprehensive perspective on national highway user tax structure in relation to overall cost responsibility; and analyzed external costs.

4.1.2 Resumes/Company Profile and Experience

Battelle's Qualifications

Battelle is a billion-dollar company that develops, manages, and commercializes technology. It began operations in Columbus, Ohio, in 1929, having been established by industrialist Gordon Battelle to support:

- Technology development and commercialization
- Education in connection with research and development

- Education of people for employment
- Service to community.

Battelle has a worldwide staff of 7,500 scientists, engineers, technicians, and supporting specialists. Each year, Battelle's business operations conduct thousands of programs for some 2,000 companies and government agencies. Typically, this work results in 50 to 100 patented inventions each year. Battelle-owned buildings and equipment are valued at more than $518 million.

Battelle is a charitable trust organized as a non-profit corporation under the laws of the State of Ohio and is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code because it is organized for charitable, scientific, and educational purposes. Battelle conducts scientific research and technology development for both government and commercial sponsors and supports a broad range of charitable activities in the communities in which it operates.

One of Battelle's major business lines is the Transportation and Space Division (TSD). Battelle's TSD conducted $50 million of research for United States Department of Transportation agencies in 2003. Economists at Battelle have modeled federal motor fuel tax evasion for the IRS and FHWA, and have extensive experience in transportation data analysis, economic modeling, and econometric analysis. Battelle also offers extensive experience in statistical analysis, transportation data collection, operations analysis, transportation policy analysis and modeling and simulation.

In addition to headquarters in Columbus, Ohio, Battelle has major technology centers in Richland, Washington, where we manage and operate the Department of Energy's (DOE's) Pacific Northwest National Laboratory (PNNL) through our Pacific Northwest Division; Long Island, NY, where Battelle and the State University of New York at Stony Brook, acting through the SUNY Research Foundation, form a limited liability company to manage and operate Brookhaven National Laboratory (BNL); Golden, CO, where we are a major subcontractor to MRI in managing the National Renewable Energy Laboratory (NREL); Oak Ridge, TN, where we partner with the University of Tennessee in a limited liability company to manage and operate the Oak Ridge National Laboratory (ORNL); and Geneva, Switzerland. Specialized facilities, regional centers, and offices are located in more than 80 other cities in the United States and worldwide.

Project Experience

The following demonstrates the Battelle Team's accomplishments in areas important for the successful completion of this project. Table 1 lists projects that demonstrate the relevant accomplishments of Battelle. A description of each project is presented after the table.

Table 1 – Summary of Related Projects

	Project Title	Client
1	Economic Indicators of Federal Motor Fuel Tax Collections	Internal Revenue Service
2	Analysis of Highway User Tax Evasion Rates	Federal Highway Administration
3	Gasohol Estimation Model Review	Federal Highway Administration

	Project Title	Client
4	Federal Highway Cost Allocation Study	Federal Highway Administration
5	Independent and Comprehensive Review of FHWA's Methodology for Analyzing State Motor Fuel Data and Attributing Highway Trust Fund Receipts to the States	Federal Highway Administration
6	Vehicle Technology Assessment for MPG Impact and Forecast Highway Revenue Forecasting Model	Federal Highway Administration
7	ExSTARS Fuel Tracking System	Internal Revenue Service
8	Estimating the Economic and Fiscal Impact of Montana's Petroleum and Gas Industries	Montana Petroleum Association

Project 1: Economic Indicators of Federal Motor Fuel Tax Evasion

Battelle was asked by the Motor Fuel Excise Tax Division of the United States Internal Revenue Service (IRS) to develop structural and statistical models that (1) predict what fuel excise tax revenues should be collected based on economic activity; (2) detect unexpected trends in tax collection that might require further investigation; and (3) detect possible historical under-collection of motor fuel excise taxes. Battelle has prepared a report that documents the Battelle Gasoline Excise Tax Model, which is the first installment of an all fuels model, which will allow the user to understand the underlying causes of changes in fuel consumption and excise tax revenues and to identify and explain unusual changes in consumption levels that could represent potential occurrences of evasion.

The Battelle Gasoline Excise Tax Model was used to construct quarterly estimates of gasoline and gasohol consumption and federal tax liability from 1981 through the fourth quarter of fiscal year (FY) 2001. The model indicates that prior to 1988 there was significant under-collection of federal gasoline excise tax revenue. However, since 1988, when the point of tax collection was moved up the distribution chain to the terminal rack, compliance has improved significantly, with no significant under-collection of gasoline excise taxes evident since that time (See Figure 1). The trend since 1992, however, indicates that under-collections may be increasing since Battelle forecasts of tax collections have begun to diverge from IRS reported collections. The Federal Highway Administration (FHWA) data appear to corroborate the results of the Battelle model and investigation. This trend needs to be

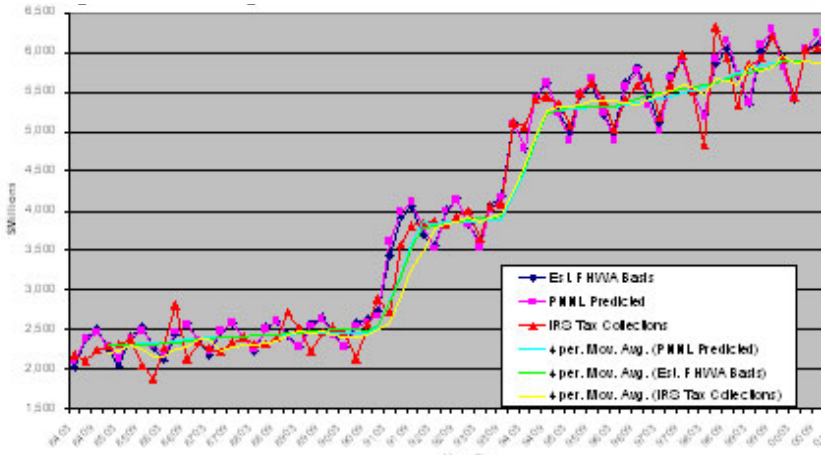

Figure 1 – Comparison of Predicted FHWA and IRS Gasoline and Gasohol Tax Collections

investigated to determine whether it is indicative of a growing compliance problem or due to a short-run problem or prediction error. The trend at this point is not beyond that which could be reasonably explained by variance in the model's prediction error.

Using the Battelle Gasoline Excise Tax Model, quarterly fuel consumption for on-highway use has been estimated for three categories of vehicles: automobiles and motorcycles, light trucks and SUVs, and heavy trucks using three-stage least squares analysis. At this point, only the gasoline sector is completely estimated. Supply and Demand equations for vehicle miles of travel (VMT) for all three vehicle categories are estimated. Demand for VMT is based upon economic variables such as Gross Domestic Product (GDP), Non-farm Employment, and the price of gasoline. Fuel efficiency equations are estimated based on CAFE standards and lagged endogenous variables. Dividing VMT by fuel efficiency by vehicle type provides fuel consumption. Based on data obtained from surveys and tax reports, fuel was divided into gasoline, gasohol, and distillate according to vehicle class and allocated to taxable and non-taxable categories to determine excise tax collections.

Model regression results indicate that actual VMT are being estimated reasonably well based upon mean percent error, mean absolute percent errors, and Theil statistics. Preliminary Theil forecast error statistics collected for both in and out of sample estimates indicate the model performs well for VMT. Theil relative forecast error statistics also indicate very good performance by the VMT equations. Results also show that heavy truck VMT may be changing structurally during the last two years as the relationship between GDP and heavy truck VMT appears to be diverging.

Battelle's approach differs from previous studies in that although it was developed to project fuel excise tax collections, it was also designed to detect changes in compliance levels. Battelle's approach calculates consumption and then through tax rates and accounting procedures calculates the amount of excise tax due. Most revenue prediction models statistically estimate revenue directly from VMT or consumption, and therefore, are inappropriate for detecting changes in the level of compliance. Furthermore, models that calculate revenue from consumption have not attempted to detect evasion.

Most previous evasion studies try to establish the actual level of evasion occurring using one the following methods: (1) literature review, (2) audit review, (3) analysis of border interdictions, (4) survey of tax administrators, (5) comparison of fuel supply with taxed gallons, (6) comparison of fuel consumption or sales with taxed gallons, or (7) econometric analysis. Previous approaches were clearly flawed, as they would need either: 1) a 100-percent sample of consumption by taxable and non-taxable categories, which does not exist; or 2) sample information that correctly characterizes total evasion rather than sample information that has an unknown relationship to the total evasion. Therefore, the Battelle Gasoline Excise Tax Model does not capture the absolute level of evasion, but rather detects historical and current trends in compliance.

The sample work product included with this proposal, *Economic Indicators of Federal Motor Fuel Excise Tax Collections,* was prepared as part of this project.

Project 2: Analysis of Highway User Tax Evasion Rates

Battelle is currently working under the sponsorship of FHWA to determine the current rates of evasion for motor fuel taxes at the federal level, as well as evasion rates for other federal highway use taxes. In addition, part of the study will assess how much the

federal effort would assist state efforts to combat tax evasion. The research will explore several different areas to achieve an understanding of the evasion problem. The research is focusing on the following tasks: (a) mapping out and defining the domestic fuel distribution system component parts, (b) identifying and examining the import process for finished motor fuel products, (c) identifying data collected by agencies involved with imports of finished motor fuel products, (d) identifying known evasion techniques, (e) gathering data for analysis, (f) identifying amounts of fuel produced and imported into the U.S. and determining amounts of fuel used for transportation purposes, (g) performing analysis of data to determine motor fuel evasion rates, and (h) providing recommendations on ways to address potential or known evasion schemes and determine reasonableness of recommendations.

This project will generate estimates of evasion for motor fuel taxes at the federal level, including gasoline and gasohol, diesel, kerosene, and jet fuel; heavy vehicle use tax; truck retail tax; and truck tire tax. The project will also include an explanation of the fuel distribution system and background on how each of the highway use taxes is collected. It will identify where evasion is or has the potential to be occurring. The final report will also identify the methodology used to determine the rates of evasion identified.

Project 3: Gasohol Estimation Model Review

The Federal Highway Administration requires reliable estimates of gasohol consumption for several reasons, including publication of *Highway Statistics* and allocation of Federal highway funds pursuant to equity adjustment programs such as the Minimum Allocation and Donor State Bonus Programs. The Energy Policy Act of 1992 (EPACT) created three types of gasohol for federal tax purposes: 10, 7.7, and 5.7 percent ethanol by volume. EPACT changed the tax treatment of gasohol, which required FHWA to change the way it estimated gasohol revenues attributed to each state. In 1998, FHWA initiated a task to review the model that had been used for the last four years to estimate state gasohol consumption (Gasohol Estimation Model). Battelle, under contract to FHWA, updated the current information on state collection techniques and data used in the model and tested the regression used in the model to verify its ability to determine gasohol usage.

The first task activity involved contacting each state to determine its gasohol usage. Battelle also updated other elements of the Gasohol Estimation Model (e.g., blender's incentive, producer's incentive, ethanol production). During this data collection process, many states reported that their techniques for collecting estimations of gallons of gasohol used had changed since the 1994 study. For these states, the change involved consolidating the gasohol with gasoline because both were taxed at the same rate or eliminating gasohol use altogether. The second task activity was to test the regression equation used in the model. The Gasohol Estimation Model uses a regression equation to estimate the gasohol usage within a state. The inputs to the regression are elements that influence the use of gasohol. For example, a state with in-state production of ethanol or an oxygenated fuels program in place was more likely to have larger usage than a state without these incentives or programs. Other issues affecting gasohol usage involved locations of ethanol plants and ethanol shares within a state.

Project 4: Federal Highway Cost Allocation Study

For FHWA, Battelle conducted a number of studies to support the 1997 Highway Cost Allocation Study (HCAS), the first major update since the last FHWA HCAS was completed in 1982. This project has conducted significant research to develop improved analytical tools and data needed for the HCAS:

- *Highway Travel and Revenue: Data and Models.* The Battelle Team evaluated and refined the vehicle classification and weight distribution systems used by FHWA, developing base-year vehicle miles of travel (VMT) estimates, refining VMT forecasting procedures, updating operating vehicle weight and axle weight distributions, improving registered-weight to operating-weight distributions, refining FHWA's revenue model to accommodate cost allocation needs, and assessing various revenue strategies for HCAS.
- *Treatment of Design Characteristics and Residual Costs in HCASs.* The Battelle Team developed a common rationale for allocating diverse types of residual costs; applying various relationships between vehicle characteristics and geometric design costs; expanding current understanding of passenger-car equivalence as a likely residual cost allocator; and developing a method for using differential benefits as another candidate residual cost allocator.
- *Life Cycle Approach for Pavement Cost Allocation and Analysis.* The Battelle Team explored the adequacy of available models to implement a life-cycle pavement cost allocation approach, modifying and applying the best available models, developing a prototype method for allocating pavement costs based on a marginal life-cycle cost analysis, and evaluating the suitability and limitations of the prototype approach.
- *Document and Review Bridge Cost Allocation Models.* Battelle documented the changes made in the bridge cost allocation methodologies (e.g., addition of cost categories and design/cost increments, redefinition of the width of a narrow bridge) to provide users with a comprehensive understanding of the models and to indicate areas for future research and modeling.
- *Develop and Document Highway Expenditures for Cost Allocation Study.* Battelle assisted the FHWA in developing highway program costs to be allocated, documenting the process taken to allocate these costs, and developing a system to manage the information and analytical analysis of the HCAS.
- *HCAS/Pricing for All Levels of Government.* The Battelle Team expanded the results of the federal analysis to provide a comprehensive perspective on national highway user tax structure in relation to overall cost responsibility. This will lead to improved HCAS methods for use by the states and provide an opportunity for state representatives to participate in the federal study as advisers.

Project 5: Independent and Comprehensive Review of FHWA's Methodology for Analyzing State Motor Fuel Data and Attributing Highway Trust Fund Receipts to the States

Recognizing the increasing importance of accurate, timely reporting of motor fuel and related attribution data in determining state-funding shares, the FHWA is reviewing the motor fuel data reporting system used to collect this information. As part of the continuous improvement process, FHWA has implemented certain changes directed at improving the quality and timeliness of fuel tax data reported by the states as well as the

accuracy and reliability of the fuel tax attribution process. This project is designed to conduct an independent comprehensive review of FHWA's methodology for analyzing state motor fuel data and attribution of Highway Trust Fund (HTF) receipts to the states. The primary objectives of this study are to review and document the fuel tax attribution process and examine the impacts of the changes implemented by FHWA as part of the continuous improvement model on the fuel tax attribution process. The study focuses on evaluating the following:

- The consistency and reliability of the procedures and models used in the fuel tax data analysis leading to attribution. This includes a detailed review and documentation of the fuel tax attribution process and FHWA's instructions or guidelines to the states regarding reporting of fuel tax data.
- The impact of changes implemented by FHWA on the fuel tax data acquisition and analysis process – e.g., the use of (i) Smart Input Tool by the states to submit fuel tax data, and (ii) oversight process to improve the quality of data submitted to the FHWA.
- A detailed review of the fuel tax attribution methodology was conducted using an evaluation framework that identified four goal areas: legacy system performance, data process quality, risk management, and institutional issues as they relate to the fuel tax attribution process.
- The legacy system performance goal area evaluated the ability, efficiency, and reliability of the fuel tax attribution system to perform its intended functions of accepting, analyzing data, and delivering accurate and consistent state fuel tax attributions.
- The data processing quality goal area evaluated the quality and reliability of data analysis procedures applied in processing of motor fuel tax data from the states. This goal area evaluates the business rules (rules-of-thumb, assumptions, and formulas used in the estimation models) and how these rules affect the results of the attribution process.
- The risk management goal area related to the policies and practices that ensure consistency and reliability in data quality, acquisition, analysis, and reporting Highway Trust Fund attributions.
- The institutional issues goal area identified any institutional issues related to data acquisition and handling as well as attribution of fuel tax revenues. This includes institutional arrangements that affect the fuel tax data processing directly or indirectly.

Project 6: Vehicle Technology Assessment for MPG Impact and Forecast Highway Revenue Forecasting Model

For FHWA, Battelle updated the fuel module for the Highway Revenue Forecasting Model (HRFM). The HRFM was developed in 1981 as a means for the federal government to develop both short and long-term estimates of federal fuel tax collections. The model has been updated three times since 1981. The principle objectives of this update of the HRFM model were to assess the potential impact to fuel economy of market penetration of alternative fuels, pressure to reduce dependence on motor fuels, and new emission control requirements required by the Environmental Protection Agency (EPA).

The study constructed forecasts of future fuel economy growth by vehicle type. Passenger car MPG was forecast to grow by 1.8 percent annually during the near term (1999-2005), 0.5 percent annually during the mid-term (2005-2010), and 1.5 percent annually during the long-term (2010-2020). Light truck and sport utility vehicle MPG was forecast to grow by 0.5, 2.0, and 1.5 percent annually during the near, mid and long-term, respectively. Medium-duty truck MPG was forecast to grow by 1.5, 0.5, and 1.0 percent annually in the near, mid and long-term, respectively. Finally, heavy-duty MPG was forecast to grow by 0.75 percent annually in the long-term.

Project 7: ExSTARS Fuel Tracking System

Fuel Systems are being developed by Battelle for the IRS that would track fuels to their end use. Such a system has the capacity to be used to correlate state collections to the fuel usage values for each state. ExSTARS or the Excise Summary Terminal Activity Reporting System developed for the IRS is one tracking system that might be used to develop estimates of noncompliance by state. ExSTARS was designed to prevent and detect the existence of illegal tax evasion schemes involving the federal and state excise taxes on motor fuel. Representatives from the motor fuel industry, state and federal governments analyzed and found a potential solution to the problem of motor fuel tax evasion.

ExSTARS is an integral part of a larger system designed to track the movement of fuel to and from approved terminals reflecting fuel quantity and type as it moves through the distribution chain. The information from this system could be used to predict potential quarterly fuel volumes and that in turn can be compared with state tax collections. Such a tracking system approach would require cooperation between the states and IRS.

Project 8: Estimating the Economic and Fiscal Impact of Montana's Petroleum and Gas Industries

The Center for Applied Economic Research is currently working on a project for the Montana Petroleum Association (MPA). This project is to estimate the economic and fiscal impact of Montana's petroleum and gas industries. This project involves developing models of the costs of exploration, development, refining/processing, and transportation costs in these industries. From the models, marginal cost and marginal revenue estimates will be calculated and used to provide the MPA with estimates of the likely impact of marginal changes in the various industry tasks. The fiscal impact analysis will focus upon the direct and indirect flows of revenues to Montana and its counties due to exploration and production of both commodities.

Qualifications of the Research Team

Battelle has assembled a team of experts with experience directly related to the proposed research. The Battelle Team will provide a blend of skills that ensures that we will satisfy all requirements of the project. The team combines experience in economics, motor fuel tax administration, econometrics, transportation policy, data collection, GIS mapping, tax law, accounting, statistical data analysis and modeling within a transportation setting. The Battelle Team has numerous unique qualifications that are complementary to this project:

- Experience in modeling motor fuel tax evasion for the IRS

- Experience in assessing motor fuel tax data for the IRS and FHWA
- Proven expertise in designing a motor fuel tracking system
- Extensive experience in econometric and statistical analysis
- Knowledge of federal and state motor fuel tax administration and enforcement programs
- Experience in analyzing the national fuel distribution system and mapping portions of it in GIS
- Experience in analyzing the gaps in current federal enforcement programs
- Extensive experience in the collection and analysis of transportation, economic and energy data
- Extensive transportation modeling expertise
- Experience in analysis of tax law
- Accounting experience including corporate tax planning and compliance.

The following section summarizes the relevant skills and experience of the key team members who are essential to the successful completion of this project. Table 2 identifies the relevant skills, education and experience that we believe will enable the Battelle Team to complete this project in an exceptional and timely manner. The resumes that follow summarize the qualifications and relevant experience of the key members of the Battelle Team.

Table 2 – Summary of Team Member Qualifications

Team Member	Education	Relevant Skills	Years of Experience
Patrick Balducci	M.Sc., Environmental Economics (In Progress) B.S., Economics	Project management, evasion analysis, benefit-cost analysis, policy analysis, tax program analysis, financial analysis, transportation modeling	9 years
Mark Weimar	Ph.D., Economics	Project management, econometric modeling, benefit-cost analysis, evasion analysis	21 years
Marina Melchiorre	B.S., Civil Engineering	Transportation modelling, data collection and analysis, GIS mapping, transportation engineering	6 years
Debra Schoenfeld	J.D., Business and Taxation M.B.A., Accounting and Finance B.S., Business Administration	Accounting, tax law analysis, financial analysis	15 years
Edward Fekpe	Ph.D., Transportation Engineering	State motor fuel data analysis, fuel tax attribution process	22 years

Mr. Patrick Balducci will serve as our project manager. As project manager, Mr. Balducci will maintain ongoing communication with the team members as well as the Montana Department of Transportation (MDT) project manager, and will be ultimately responsible for ensuring the all deliverable deadlines and milestones are met and that all products satisfy the highest quality standards. Mr. Balducci has 9 years of experience in transportation economics, with relevant experience in evasion estimation, cost analysis and revenue forecasting, benefit-cost modeling and analysis, transportation tax analysis, financial analysis and highway cost allocation. Mr. Balducci will serve as an economist for the team and will assist in formulating the final work plan, conducting the literature

review, identifying and examining motor fuel tax data, conducting and interpreting the results of the interviews, comparing Montana's motor fuel tax program to those in neighboring states, estimating evasion and recommending methods for reducing evasion. Mr. Balducci is a Principal Research Scientist within Battelle's Transportation and Space Division (TSD). He is presently assisting on a FHWA study of motor fuel and transportation tax evasion. He has developed program and project-level financial and economic analyses for a number of public agencies throughout the United States, including FHWA, the IRS, Florida Department of Transportation, Metropolitan Washington Council of Governments, New York Metropolitan Transportation Authority, Oregon Department of Transportation, and Southern California Association of Governments.

Dr. Mark Weimar will serve as an economist for the team and will assist in formulating a final work plan, examining Montana's current enforcement and compliance program, performing benefit-cost analysis on proposed enforcement and compliance activities, and estimating evasion. Dr. Weimar has 20 years experience in the use of financial modeling, econometrics, cost-benefit modeling, operations management tools, statistics to study the impact of various policy options in the energy, agriculture, and transportation sectors. He has extensive experience in transportation and economics practices and research. Dr. Weimar has worked on projects dealing with different aspects of transportation economics and econometric modeling throughout the United States. He is a Chief Economist at the Battelle-operated Pacific Northwest National Laboratory. He recently completed, with the assistance of Mr. Balducci, the first phase of an IRS assessment of fuel tax collections and evasion and is assisting on an analysis of transportation tax evasion for FHWA.

Ms. Marina Melchiorre will serve as a transportation analyst for the team, focusing on data collection and analysis, as well as GIS mapping. Ms. Melchiorre has more than 6 years of experience in civil engineering practice and research in transportation and transit-related activities, specifically in the area of modeling and use of Geographic Information System (GIS) tools, in both the U.S. and Canada. She has also co-authored a number of papers that address various issues in the transportation and transit areas. Her experience includes supporting the design and testing of an online-automated quality assurance and quality control system for processing geospatial data (FEMA Q3 and DFIRM digital floodplain maps and pipeline data). The FEMA system, noted above, included features such as the automated uploading of data; email notifications and online reports of submission status; and trouble shooting of errors and result summaries prior to certification of submissions. Ms. Melchiorre has also provided database support, GIS capabilities, and technical assistance to the Federal Highway Administration Office of Policy's Comprehensive Truck Size and Weight Study. Under this effort, she created and modeled analytical GIS networks to determine truck travel behavior as well as involvement in the shipper choice algorithms (truck and rail) including the development of origin-destination matrices, routing, and trip assignment components. She is highly proficient with several GIS software tools, including the complete ESRI product line.

Ms. Debra Schoenfeld will serve as a legal, accounting and tax expert for the team. Ms. Schoenfeld brings 15 years of experience to the project in accounting, tax law, and business administration. She is a Certified Public Accountant with a Masters of Business Administration and Juris Doctorate with emphasis in accounting, finance, business, and taxation. She has experience in capital budgeting, revenue/expense/margins forecasting and general accounting. She is skilled in corporate tax planning and compliance, including auditing, accounting, and financial

reporting. Ms. Schoenfeld is presently serving as an Associate Professor of Accounting at Montana State University – Billings.

Dr. Edward Fekpe will provide senior technical analysis expertise. Dr. Fekpe has over 22 years of experience in transportation engineering practice, research, and education. He has extensive knowledge and experience in transportation policy and regulatory analysis, highway cost allocation, highway infrastructure impact assessment and management, and application of technology deployment. Dr. Fekpe served as project manager and principal investigator on a task for the FHWA Office of Highway Policy Information, "Independent and Comprehensive Review of FHWA's Methodology for Analyzing State Motor Fuel Data and Attributing Highway Trust Fund Receipts to the States." Dr. Fekpe recently completed the project in which he critically reviewed and documented the fuel tax attribution process and examined the impacts of the changes implemented by FHWA as part of the continuous improvement model on the fuel tax attribution process. The study focused on evaluating the consistency and reliability of the procedures and models used in the fuel tax data analysis leading to attribution. This included a detailed review and documentation of the fuel tax attribution process and FHWA's instructions or guidelines to the states regarding reporting of fuel tax data. The study also evaluated the potential impacts of changes implemented by FHWA on the fuel tax data acquisition and analysis process – e.g., the use of (i) Smart Input Tool by the states to submit fuel tax data, and (ii) oversight process to improve the quality of data submitted to the FHWA. A structured evaluation framework was used that identified four goal areas: legacy system performance, data process quality, risk management, and institutional issues as they relate to the fuel tax attribution process.

4.1.3 Method of Providing Services

Proposed Work Plan and Commitments of the Research Team

Revenues from federal and state motor fuel and other highway taxes provide the vast majority of the financial support for our nation's transportation system. Ensuring all motor fuel and highway use tax funds are collected, remitted, and credited to the federal and state Highway Trust Funds (HTF) is a priority, but evasion of these taxes has proven problematic. In 1993, the evasion rate for the federal gasoline tax was estimated to be between 3 and 7 percent and the diesel tax evasion rate was estimated at 15 to 25 percent. That level of evasion translated at the time to roughly $1 billion in lost revenue annually. These estimates were largely based on Congressional subcommittee testimony of state and federal representatives as well as convicted tax evaders. At the state level, estimates have varied significantly, from as low as $600 million to as high as $2 billion.

Since 1993, changes in legislation and increased enforcement and audit efforts, primarily directed toward diesel, kerosene and aviation fuels have increased revenues to both federal and state HTFs. Estimates that take into consideration traditional factors for growth of revenue (i.e., vehicle miles traveled) compared to actual revenue growth indicate that the evasion rates are not as great as the levels estimated prior to 1993. In addition, results of post-1993 joint audits performed under the Federal Highway Administration (FHWA) Joint Federal/State Motor Fuel Tax Compliance Project do not reflect broad based compliance. Reliable estimates for motor fuel tax evasion rates in Montana as well as other highway user taxes are not currently available.

Reliable estimates of state motor fuel tax evasion could identify specific problem areas and allow for concentration of efforts and resources to combat evasion. The research findings and recommendations developed under this research effort could be used in the development of specific enforcement programs and changes to state tax code that will ultimately improve compliance and increase contributions to the State of Montana. The potential revenue impacts to the State of Montana could be considerable once evasion rates are determined and the enforcement recommendations are implemented. The monetary payoff from this research and follow-up enforcement efforts could be significant. Even a one percentage point reduction in evasion of state motor fuel taxes (e.g., gasoline, gasohol, and diesel) would yield nearly $2 million in additional revenue annually to the State of Montana.[1]

This project is designed to determine the extent and underlying reasons for motor fuel tax evasion, and is further designed to generate recommendations concerning where best to focus enforcement efforts and make changes to tax code to close the gap between total tax liability and actual tax collections in Montana. The specific objectives of this project are to:

- Critically assess administrative and enforcement characteristics of border state practices, identify how these characteristics have traditionally correlated with certain types of evasion and compare these programs to those practices in Montana.
- Identify evasion techniques and note administrative, enforcement and legislative strategies used to curtail motor fuel tax evasion.

[1] Estimate based on data presented in 2002 Highway Statistics, Federal Highway Administration, Table MF-1.

- Identify and examine data that could be used to assist Montana in measuring motor fuel tax evasion.
- Develop and demonstrate a methodology for reliably estimating state motor fuel tax evasion
- Develop recommendations for making changes to the current administrative, enforcement and legislative framework established for the motor fuel tax program in Montana and perform benefit-cost analysis to rank these proposed changes based on the computed benefit-cost ratio for each proposed programmatic change.

Battelle is offering an experienced and qualified team to achieve these objectives. Figure 2 shows members of the Battelle Team and the specific expertise that is required to achieve the objectives of the project. The Battelle Team combines experience and expertise in the following disciplines:

- Experience in modeling motor fuel tax evasion for the IRS and FHWA.
- Proven expertise in designing a motor fuel tracking system.
- Extensive experience in econometric and statistical analysis.
- Experience in conducting benefit-cost analysis for FHWA, the Nuclear Regulatory Commission and the United States Department of Energy.
- Knowledge of federal and state motor fuel tax administration and enforcement programs.
- Extensive experience in the collection and analysis of transportation, economic and energy data.
- Transportation modeling expertise.
- High-level experience in accounting and tax law.

The Battelle Team includes two outstanding research organizations with a number of unique qualifications, which are required to undertake the project. These research organizations are Battelle and Montana State University-Billings, Center for Applied Economic Research. Figure 2 demonstrates how the unique skills offered by these research organizations are aligned with the objectives of this research project.

Battelle is a not-for-profit research and development organization with a worldwide staff of 7,500 scientists, engineers, and technicians. Battelle offers high-level expertise and experience in a number of scientific fields, including transportation, energy, and environmental research. Battelle is headquartered in Columbus, Ohio with major offices worldwide. One of Battelle's major business lines is the Transportation and Space Division (TSD). Battelle's TSD conducted $50 million of research for United States Department of Transportation (US DOT) agencies in 2003. Economists at Battelle have modeled federal motor fuel tax evasion for the IRS and FHWA, and have extensive experience in transportation data analysis, economic modeling, and econometric analysis. Battelle also offers extensive experience in statistical analysis, transportation data collection, operations analysis, transportation policy analysis and modeling and simulation.

Montana State University-Billings, Center for Applied Economic Research. Established in 1927, Montana State University-Billings is committed to the value of lifelong learning through access to education and excellence in teaching. Montana State University-Billings is accredited by the Northwest Association of Schools and Colleges. MSU-Billings' faculty have expertise in many areas and approximately 91 percent hold

the highest degrees in their fields. They contribute a number of articles each year to academic and professional journals in their fields and they participate with their peers nationwide at conferences and seminars. Each year they receive grants ranging from Fullbrights for study abroad to those for the investigation of human and scientific information and research. The University's 112-acre campus is located in Billings, Montana, which has a population of over 100,000 residents. MSU-Billings has over 100 programs of study with over 4,400 students enrolled, approximately 400 graduate students, and over 150 full-time faculty. The Center for Applied Economic Research is a university research center affiliated with Montana State University – Billings. The Center was started in 1999 to provide research and analysis to support economic development in Montana and the northern Wyoming region. Since its inception, the Center has provided research services to businesses, local economic development organizations, and state and federal agencies.

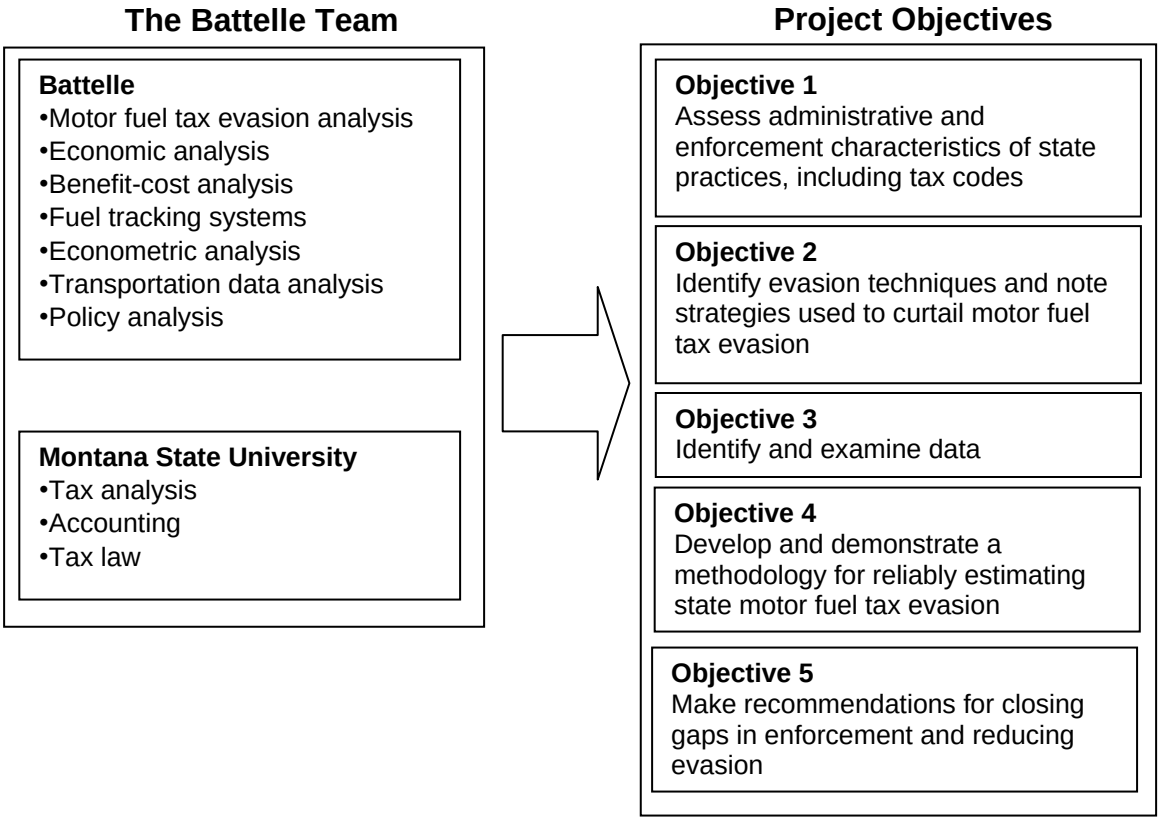

Figure 2 – The Battelle Team's Skills, Experience, and Project Objectives

The Battelle Team understands that the primary focus of this research project is to identify and close current gaps in Montana's tax code and current enforcement efforts relating to motor fuel taxation. The approach outlined in this work plan will enable the Battelle Team and the Montana Department of Transportation (MDT) to assess the adequacy of approaches used to reduce motor fuel tax evasion. The Battelle Team understands the various forms of data required to perform such an analysis and are the only firm with expertise in each of the generally accepted state motor fuel tax evasion estimation methods (fuel tracking systems, econometric analysis, supply versus taxed gallons, analysis of administrative/enforcement programs). The Battelle Team also

offers experience in the assessment of motor fuel tax administrative and enforcement programs.

The project is divided into 10 tasks, as identified in Section 3.2 of the RFP. The following sections describe the technical approach and methodology that the Battelle Team proposes to accomplish each task.

Task 1A – Attend kickoff meeting and revise work plan.

Mr. Patrick Balducci and Dr. Mark Weimar will attend a kickoff meeting to be held on an agreed upon date in Helena, Montana. At the kickoff meeting, Mr. Balducci and Dr. Weimar will meet the members of the technical panel and work with them to finalize project scope and address any sensitive issues expressed by the panel. The Battelle Team will assist the Montana Department of Transportation (MDT) Project Manager (PM) in developing an agenda for the kickoff meeting and will prepare minutes following the meeting. Based on the outcome of the kickoff meeting, the Battelle Team will prepare a revised work plan and submit it to the MDT PM for review.

Deliverables: Meeting agenda and meeting minutes.

Task 1B – Conduct literature review and document current federal activities aimed at reducing motor fuel tax evasion.

As part of a federal motor fuel tax evasion study recently completed for the IRS and an on-going transportation tax evasion study being conducted for FHWA, the Battelle Team completed a detailed literature review on motor fuel tax administration, enforcement, and evasion. The team prepared a document highlighting existing models and methods for tax administration and enforcement, evasion estimation and revenue forecasting. Furthermore, the team also constructed an annotated bibliography on this topic. A bibliography is included at the end of this section.

The team will use in-house resources and facilities available to the team in identifying and reviewing relevant literature. For example, research resources relating to motor fuel tax evasion are available at the Battelle-operated Center for Transportation Analysis, located in Oak Ridge, Tennessee. Additional resources are available through Battelle's Technical Information Center, the Hanford Technical Library located in Richland, Washington, and the team's easy access to University libraries (e.g., Ohio State University, University of Tennessee, Portland State University, Montana State University, and Washington State University).

The literature envisioned for this study falls into the following categories:

- Evasion studies. Examine the multitude of studies that have examined evasion at the state and federal levels during the past 20 years. These studies provide an overview of the evasion problem, methods for estimating evasion and estimated evasion rates for each state in the nation (in limited cases).
- Fuel reporting and tracking systems. This component includes documentation of ExSTARS and state-level fuel distribution systems examined for this study.
- Federal and state motor fuel excise tax revenue forecasting. This source of information is used to gain a stronger understanding of the factors other than evasion that impact motor fuel tax collections. Models forecasting federal motor fuel consumption and tax revenue have been developed by FHWA, the Federal Aviation

Administration, United States Department of Energy (US DOE), United States Treasury, Congressional Budget Office and the Joint Committee on Taxation. State revenue forecasting models from Oregon, Indiana, Maryland, Virginia, Washington, and Wisconsin have already been obtained and examined.

- Motor fuel tax administration and enforcement. Literature relating to motor fuel tax administration and enforcement collected to date includes examinations of the impact of altering enforcement programs (e.g., switching the point of taxation to the terminal rack and dying diesel fuel), minutes from legislative hearings on motor fuel tax enforcement and compliance, documented government responses to reports of motor fuel tax evasion and minutes from the Joint Federal/State Motor Fuel Tax Compliance Project. Administration and enforcement literature collected to date will be enhanced by the data and information acquired during the interviews conducted under Tasks 2, 4, and 5.
- Analysis of data sources. Documentation of data sources and literature that compares and examines data sources will be analyzed. Literature that examines the reliability of, and relationships between, data sources (e.g., collection methods, survey targets, information sources, error, limitations) will be identified and analyzed.
- Analysis of tax codes. In preparation for Task 3, the Battelle Team will identify and examine any literature relating to the relationship between tax codes and motor fuel tax evasion. The Battelle Team will scan the literature for documents detailing shortcomings in motor fuel excise tax codes that can be exploited by tax evaders and tax code changes that have been used to address these shortcomings.
- Methods used to curtail tax evasion. Literature relating to efforts on the part of states around the country to improve enforcement, expand the revenue base, and curtail motor fuel tax evasion will be examined. This portion of the literature review will focus on the gaps in the enforcement systems identified by states, the approaches to close these gaps and the impact of the change on evasion and revenue.
- Other relevant studies. Additional relevant studies will be identified and examined. Studies that fall into this category collected to date include federal and state highway cost allocation studies, examinations of alternatives to motor fuel taxation, estimates of fuel used for off-highway and non-taxable uses, assessments of future fuel economies and alternative fuel market penetration and econometric modeling.

The Battelle Team will consult with tax administrators and representatives from the petroleum industry, transportation industry and other relevant stakeholders during completion of Tasks 2, 4 and 5 and will use the recommendations received to expand the literature search accordingly.

The Battelle Team has also generated an examination of current and historical federal activities aimed at addressing the motor fuel tax evasion issue as part of its ongoing work for the Internal Revenue Service (IRS) and FHWA and will use this information to document federal activities and changes in enforcement programs (e.g., taxation of alternative motor fuels, moving the point of taxation to the terminal rack, the Federation of Tax Administrators) and the impacts that these changes have had on enforcement and compliance.

The product of this task will provide the foundation for the subsequent tasks in this project and will be included as an appendix in the final report.

Task 1C – Report on current enforcement and compliance activities for degree of evasion found. Identify and determine those resources needed to decrease these evasion activities.

During the past 20 years, states and the federal government have devised a multitude of tools, strategies, and methods for estimating motor fuel tax evasion. Table 3 presents a summary of fuel excise tax evasion studies not conducted by the Battelle Team. Past studies of evasion have generally used one or several of the following methods to estimate evasion: (a) literature review, (b) audit review, (c) analysis of border interdictions, (d) survey of tax administrators, (e) comparison of fuel supply with taxed gallons, (f) comparison of fuel consumption or sales with taxed gallons, (g) econometric analysis, or (h) fuel tracking systems.

Table 3 – Summary of Excise Tax Evasion Studies

Author(s)	Tax	Date	Evasion Estimate	Method
KPMG	Federal diesel tax lost due to jet fuel diversion	2001	$1.7 - $9.2 billion over 10 years	Comparison of fuel supplied to taxed gallons
Denison and Hackbart	Kentucky fuel taxes	1996	$26-$34 million	Survey of tax administrators, econometric analysis
Council of State Governments, Council of Governors' Policy Advisors	All state fuel taxes	1996	$666 million - $1.5 billion	Literature review, survey of state tax administrators, econometric analysis
Washington State Legislative Transportation Committee	Washington fuel taxes	1996	$15-$30 million	Literature review, border interdiction, random audits
Mingo & Associates, Inc.	All state diesel taxes	1995	21 percent	Comparison of fuel consumption to taxed gallons
Federal Highway Administration	Federal and state fuel taxes	1994	$1 billion (Federal fuel taxes), $3 billion (Federal/state fuel taxes	Literature review, analysis of auditing data
Federal Highway Administration	Federal gasoline and diesel tax	1992	$466.1 million (gasoline tax), $860.2 million (diesel tax	Literature/testimony review, analysis of auditing data
Mitstifer, National Association of Truck Stop Operators	Federal diesel tax	1992	$3 billion	Comparison of diesel fuel consumption (based on reports from truck stops) to taxed gallons
Addanki, National Economic Research Associates, Inc. (NERA)	Federal gasoline taxes	1987	More than $500 million	Econometric Analysis, Comparison of fuel consumption to taxed gallons
NERA	New York gasoline taxes	1987	$168.4-$254.5 million	Econometric analysis

The Battelle Team will scan the studies referenced above and will incorporate the findings of the literature review to update this list. Where credible estimates of evasion exist at the federal level and for states and provinces, either generated through the literature review or the interviews conducted under Task 2, the Battelle Team will document evasion rates and also will identify schemes used to evade remitting the appropriate state taxes on motor fuels to state DOTs, Doors and other collection agencies. These schemes will include, but not be limited to: (a) failing to report the proper amount of taxes that are due; (b) illegally importing fuel and selling it as a tax-paid fuel; (c) substituting tax-exempt or low-taxed fuel for higher-taxed uses; (d) blending non-taxed or low-taxed fuels to increase volumes; (e) illegally using dyed fuel or removing the dye from such fuel, and filing false tax refund claims.

The Battelle Team will highlight best practices in terms of historical and current enforcement and compliance activities and will document how these activities were perceived to have reduced evasion within each relevant jurisdiction and how the various compliance and enforcement activities (e.g., taxing at the terminal versus retail level, auditing expenses on a per FTE basis) translated into program costs. A key source of information for this task may be the data being generated by the Federation of Tax Administrators (FTA) as part of its best practices research being conducted under the direction of the Uniformity/Enforcement Subcommittee. The usefulness of the FTA data will depend on its availability and the timing of its issuance.

The information gathered through this process will be used to highlight best practices in terms of motor fuel compliance and enforcement activities and to document the resource requirements for reducing evasion. The output of this task will later be used to support the Task 7 benefit-cost analysis and recommendations provided in Task 10.

Task 2 – Report on the degree of effectiveness and reason thereof with the controlling of fuel tax evasion in the various states and provinces that border Montana.

The objective of this task is to document the experience of the states and provinces that border Montana in identifying and responding to motor fuel tax evasion, and to determine how the various elements of their program impact evasion. To gain a better understanding of how state and provincial motor fuel tax evasion may occur and how the variations in motor fuel tax programs may impact evasion, the Battelle Team will interview and collect information from motor fuel tax administrators and other relevant private and public agencies (e.g., oil industry representatives, state departments of transportation, state departments of revenue). Information gathered will form the foundation of a critical analysis of the motor fuel tax programs in the states and provinces that border Montana. The Task 1, 2 and 5 analyses will include, at a minimum, information from the following states and provinces:

- Alberta
- British Columbia
- Idaho
- North Dakota
- Saskatchewan
- South Dakota
- Washington
- Wyoming

The Battelle Team plans to gather all the information required in Tasks 1, 2 and 5 simultaneously when contacting the state and provincial authorities. In this manner, the interview process will be streamlined and the burden on border agencies kept to a minimum.

The Battelle Team will gather information relating to historical and present compliance and enforcement activities within each bordering state and province and will examine motor fuel tax administration, compliance and enforcement program elements to determine how various program elements differ from jurisdiction to jurisdiction and how these elements may impact evasion. Program elements used to compare programs will, at a minimum, include the following:

- The primary points of tax collection (e.g., retailer, distributor, terminal rack) and the impact of this factor on evasion.
- Penalties and fines for non-registration and non-compliance.
- Presence and nature of motor fuel tracking systems.
- Level of enforcement – e.g., auditing and enforcement programs and level of effort.
- Treatment of alternative motor fuels, including kerosene, aviation fuel, and gasohol.
- Treatment of fuel purchased on Native American reservations.
- Geographical factors that impact evasion and how state enforcement programs reflect these factors.
- Data availability / shortcomings.
- Motor fuel tax reporting procedures.
- Methods used to collect and archive motor fuel excise tax records.
- Auditing procedures.
- IFTA enforcement and auditing.
- Tax payment mechanism (e.g., electronic, paper).
- Treatment of tax-exempt, dyed fuel.
- Treatment of refunds.
- The perceived impact of public awareness and involvement programs on decreasing fuel tax evasion.

Once the Battelle Team has completed an analysis of the federal activities related to motor fuel tax evasion and conducted a literature search, we will prepare an outline or interview protocol describing the objectives and topics to be covered in the interviews conducted for this research project. Interviews will be scheduled and conducted with members of the Battelle evaluation team and various representatives of the oil industry, motor fuel tax administrators, and other individuals involved in motor fuel tax compliance activities to obtain information consistent with the objectives of this research project. Illustrative objectives for the Task 2 activities include: (a) identifying known and conceptual evasion techniques, (b) obtaining estimates of evasion by state and province, (c) assessing data availability, (d) obtaining recent court cases that document evasion techniques and degree of evasion, (e) documenting the evolution of the motor fuel tax administrative structure and the impact of various structural changes on perceived evasion (f) examining the impact of geography (e.g., geographic proximity to borders

and low tax states) on evasion rates and (g) documenting the program elements outlined previously.

The schedule and plans for these interviews will be determined in advance with the interviewee and the evaluator in a mutually agreeable manner. The discussion topics are intended to provide for consistency across agency interviews but the intent is to be flexible and not allow the interview protocol to constrain or limit discussion. Follow-up telephone contacts and data transfers will complete the data collection process.

Note that when this proposal refers to motor fuel, the reference includes gasoline, gasohol, diesel, kerosene, aviation fuels, compressed natural gas, propane, and other fuels as necessary to complete the system and examine evasion.

Task 3 – Synopsize on the current codes and/or proposed legislation (state, national and international, if applicable) concerned with fuel tax evasion issues. Determine if there are gaps in the laws that may acerbate fuel tax evasion.

In Task 3, the Battelle Team will review and analyze the 2003 Montana Codes Annotated MCA Title 15; Chapter 70 Gasoline and Vehicle Fuel Taxes, MCA Title 18; Chapter 11 State – Tribal Cooperative Agreement, Administrative Rules of Montana ARM Title18; Chapter 9 Motor Rules – Gasoline Tax, ARM Title 18; Chapter 10 Motor Fuels Tax Division – Other Fuels and ARM Title 18; Chapter 11 Motor Fuels – Seizure and other related codes, proposed legislation, and administrative rulings related to motor fuel and other highway taxes.

Based on the detailed review of the aforementioned codes, legislation and administrative rulings, the Battelle Team will:

- Examine the Montana Code and proposed legislation related to motor fuel and other highway taxes.
- Assess the administrative rules and procedures related to motor fuel taxes.
- Determine any gaps or loopholes in the Montana Code that could be used to evade the motor fuel tax reporting, assessment or collection process.
- Examine effective federal and other state codes and proposed legislation related to motor fuel and other highway taxes.
- Assess effective federal and state administrative rules and procedures related to motor fuel taxes.
- Compare Montana's motor fuel tax code and regulations with the federal government and states that have effectively reduced motor fuel tax evasion.

The Battelle Team will prepare a report summarizing current motor fuel excise tax code in Montana, identifying current and proposed legislation in Montana aimed at addressing motor fuel tax codes in Montana, identifying gaps in the tax code that may be exploited by evaders and examining tax code changes aimed at closing those gaps, including those related to the method of effective motor fuel tax reporting, tax collection, enforcement and auditing of tax reporting and collection that reduces motor fuel tax evasion. The report will form the basis of a section contained in the final report.

Task 4 – Identify and contact the entities involved with fuel distribution within the state of Montana (producer/distributors, carriers, etc.) and report on what enforcement activities are in place within their organizations.

The Battelle Team will obtain a list of entities involved in fuel distribution within the state of Montana. The list will include those involved in the bulk transfer system (e.g., producers, distributors, terminal operators, pipeline operators) and the non-bulk transfer system (e.g., transporters and retailers). The list will not be comprehensive but will identify entities at each stage of the distribution process. The list of interviewees could be generated based on either state registrations or data on file with the federal government. Terminal operators in Montana could be identified through the terminal control number database, which includes 11 terminals and four companies operating terminals in the State of Montana. Information relating to the location and identification of companies involved with the production, distribution and sales of motor fuel products can also be obtained from surveys conducted by the United States Department of Energy's Energy Information Administration (EIA). The EIA 782 series and EIA 821 form capture data on refiners, resellers, retailers, and prime suppliers of petroleum products located across the nation on a monthly basis.

Before contacting representatives of the petroleum industry, the Battelle Team will review a copy of the annotated motor fuel tax codes for the State of Montana, along with administrative rules, in order to develop an interview protocol including a list of objectives and topics to be covered in the interviews conducted in support of this task. Possible issues developed for this task include:

- Availability and shortcomings of data reported to federal and state agencies,
- Reports filed with federal and state agencies,
- Discrepancies in how the data are prepared for various state and federal agencies,
- Industry efforts at improving excise tax compliance,
- Procedures used by industry to implement state motor fuel excise tax policy,
- Motor fuel excise tax compliance requirements,
- Implementation of refund programs,
- Impact of dyed motor fuel programs,
- Impact of Native American retail outlets, and
- Changes in how motor fuel tax data has been reported over time.

The information developed through these interviews will be documented and included in the final report.

Task 5 – Define and compare Montana's domestic program with neighboring states and adjacent international fuel distribution and compliance programs involving the various facilities and modes of transportation used.

By the use of graphics, the project team will depict the basic distribution chain used to supply an end-user with a finished fuel product. The illustrations will show how the refinery receives the crude oil, how after processing the refined product is then moved from the refinery to a terminal, then to a distributor who in turn subsequently delivers the fuel to a special user or to a retail outlet where it is sold to the ultimate consumer. Where special circumstances necessitate a departure from the basic distribution chain, specifically for aviation jet fuel, that modification will also be depicted, as will fuel exports. The points at which each state and province impose taxes will also be indicated.

Using information on the geographical location (e.g., zip codes) of major fuel depots, the Battelle Team will develop a database in geographic information systems (GIS) framework, and will use TransCAD software to facilitate display information. With this approach, customized reports reflecting the relative volumes at various locations in Montana State and around each border state and province can be generated and displayed visually. The GIS approach also allows generation of presentations, especially to policy makers. Based on data obtained in Tasks 2 and 4, the Battelle Team will document and compare Montana's fuel distribution system with those in bordering states and provinces and will document the compliance requirements and enforcement actions taken by motor fuel distribution facilities and transporters, and how the differences in compliance programs may be conducive to the evasion techniques outlined in Task 1.

The Battelle Team will compare and contrast Montana's fuel distribution system and compliance programs to those in the other states and provinces identified in the Task 2 approach. The basis of the comparison will be the information acquired through the interviews conducted in Tasks 2 and 4.

Task 6 – Identify and explain the type of data collected regarding fuel tax. Determine the accessibility and credibility of the data. Report on discrepancy of uniformity involving fuel tax data within Montana's import/export fuel distribution system. Report on accountability of fuel movements and inventory that gives the state the ability to track and account for all potential fuel tax liabilities.

In the State of Montana, the licensed distributor is responsible for the payment of the state motor fuel excise tax on the purchase or sale of motor fuel. Montana may require, however, other entities at various stages of the motor fuel distribution process to report motor fuel transactions. At the federal-level, there are several agencies concerned with tracking motor fuel as it traverses through the fuel distribution system. For example, U.S. Customs is the main recipient of entry data but other agencies such as the US DOE's Energy Information Administration (the Petroleum Supply Reporting System) and the Internal Revenue Service collect data relating to motor fuel production, distribution and sales. The Battelle Team will examine the reporting procedures involved with the movement of motor fuel through Montana's fuel distribution system and will collect data relating to motor fuel production, importation and consumption. The Battelle Team will examine state and federal databases and reporting procedures and will make contact with federal and state authorities to identify data sources relevant to the analysis.

To the extent that there are large and undefined differences in the methods used to collect data by federal and state agencies, any attempt to track motor fuel through the distribution system becomes complicated, requiring careful analysis and potentially procedures for making adjustments to motor fuel volumes as it travels through the distribution system. To identify these discrepancies, the project team will review relevant literature, examine state and federal reporting procedures, and obtain and compare data relating to motor fuel volumes at each stage of the distribution system in Montana. Once discrepancies are detected, each will be examined, and to the extent feasible, their impact assessed. The Battelle Team has previously conducted this form of analysis for FHWA and the IRS. Based on this analysis and the information gathered from Tasks 1 through 5, the Battelle Team will document the motor fuel distribution system data and reporting procedures necessary for tracking and accounting for motor fuel tax liabilities.

Task 7 – Analyze the state's current compliance and collection program including the refund program and make recommendations for improvements. Rank these improvements based on the most effective cost to benefit ratios.

Using information obtained from Tasks 1 through 6, the Battelle Team will analyze Montana's current compliance and collection program including the refund program. For example, using information about other states' collection and compliance programs (Tasks 2 and 5) and information gleaned from the literature (Task 1), improvements to Montana's current system may be deduced. In addition, through the interviews conducted with entities in fuel distribution (Task 4), approaches to improving collection and compliance programs may become apparent. Analysis of the literature indicating what has worked and not worked will be the first step in making recommendations. A systems approach to the fuel distribution system coupled with a vulnerability to evasion assessment will provide a systematic analysis of where the system could be improved. Such an analysis identifies the fuel distribution chain in Montana and its bordering states and provinces. The approach identifies the weak linkages where fuel could escape taxation. In addition, managers of Montana's current compliance and collection programs will be interviewed to determine what they believe the strengths and weaknesses of their programs are. Once all of the information has been collected, it will be analyzed to determine how the current programs could be improved either by modification or elimination of current programs and additions of new programs.

Cost effectiveness will be determined using standard benefit/cost calculations. Using the data identified in Task 6, the cost of the approach can be calculated in a straightforward manner. The added cost of the compliance and enforcement resources required can be easily deduced by estimating the costs of the added resources such as additional compliance officers required. Calculating the amount of benefits is more difficult given that it is dependent on the probability of higher collections. Again, the literature research from Task 1 may provide evidence of the amount increased revenue collections that were associated with similar improvements to collection and compliance programs in other states, federal programs and perhaps other countries. A benefit cost ratio will be developed where the direct benefits of increased revenues are divided by the added costs of compliance and collection associated with each suggested improvement. Once the benefit/cost ratios have been developed, the different approaches will be ranked by cost effectiveness and recommendations will be made for the Montana State compliance and collection program.

Task 8 – Based on available data, estimate the amount of revenue loss due to fuel tax evasion to the State of Montana. For each identified method of evasion, estimate the amount of revenue loss per each event.

With information gathered in Tasks 1 through 6, a methodology to estimate evasion will be developed and used to calculate the amount of revenue lost. The methodology chosen will be dependent on the data available as found in Tasks 1 through 6. Three preliminary approaches are outlined in this task description. Which one of these approaches are used will depend on data availability.

The first potential approach estimates supply and disappearance to determine supply of taxable fuel by type and compares it with the amount of taxes collected by fuel type. The second approach develops an econometric model that estimates the factors for Montana from which the amount of taxable fuel demanded is calculated and compared with actual collections to come up with an estimate of evasion. The third approach

depends on data being available from a dependable tracking system. From the tracking system, information on taxable use for each fuel type could be determined and compared with actual use. Taxable use times the tax rate would determine the forecast for "true" collections and would be compared with actual collections to determine the evasion level. Each of these approaches is described in more detail below.

Supply and Disappearance Approach to Estimating Evasion. This approach develops an estimate of Montana's supply of fuels for each fuel type. Disappearance estimates for each fuel type by both taxable and nontaxable uses are then compared with total supply. Discrepancies between total supply and total use would then need to be accounted for. For example, some legitimate non-taxable uses occur which are taxed and, therefore, need to be adjusted in the taxable use column. This would include residential use of gasoline in lawnmowers and off-road use for which it is not worth obtaining a refund. In addition, there are legitimate non-taxed disappearance, which needs to be accounted for in the nontaxable use column including spills and losses. The remaining amount of the discrepancy would be an estimate of the amount of fuel for which taxes should be collected.

Econometric Approach. Another approach is to develop a comprehensive fuels model to forecast fuel excise-tax collections for Montana based on economic activity and demand for fuel use in each of the sectors. Highway travel, freight transportation, residential and industry all consume fuel in the course of business and the different fuels (gasoline, gasohol, and distillates such as diesel fuel and kerosene) can be used somewhat interchangeably between sectors. For example, domestic freight can be hauled by truck, rail, water (ship or barge), or air. People can commute to business and take pleasure travel by air, rail, bus, or private vehicle (automobiles, light trucks, and sport utility vehicles [SUVs]). Similarly, industry can use either gasoline, gasohol or distillate fuels in machinery and vehicles to conduct business that is not taxable for state or federal HTF purposes. In addition, home-heating oil used in the residential sector can be used interchangeably with diesel used in freight trucks. Thus, gasoline, gasohol, diesel, and aviation fuel (gasoline and kerosene types) consumption would be estimated econometrically for passenger vehicles, light trucks and SUVs, heavy trucks, residential, industrial sectors, rail, air, and waterborne traffic sectors. This approach is very dependent on finding adequate data with enough quality to be useful.

Fuel Tracking Approach. In the fuel tracking approach, systems are being developed by Battelle for the IRS that would track fuels to their end use. Such a system could then be used to correlate state collections to the fuel usage values for each state. ExSTARS or the Excise Summary Terminal Activity Reporting System developed for the Internal Revenue Service is one tracking system that might be used to develop estimates of noncompliance for Montana. ExSTARS was designed to prevent and detect the existence of illegal tax evasion schemes involving the federal and state excise taxes on motor fuel.

ExSTARS is an integral part of a larger system designed to track the movement of fuel to and from approved terminals reflecting fuel quantity and type as it moves through the distribution chain. The information from this system could be used to predict potential quarterly fuel volumes and that in turn can be compared with state tax collections. Such a tracking system approach would require cooperation between the State of Montana and the IRS.

Based on the types of evasion found in Montana and the data found to be available and collected, an estimate for each type of evasion will be developed per event. The

estimates of lost revenue per event will depend upon the size of the event. For example, diesel pickup trucks using dyed fuel on-road will probably have a smaller per event value as compared to under-reporting of fuel taxes owed. The number of individuals using dyed fuel for on-road purposes could make it a much larger value for evasion as compared to under-reporting.

Task 9 – Determine the effectiveness of public awareness and involvement programs in decreasing fuel tax evasion.

The Battelle Team will compile information from several sources to assess the impact of public awareness and involvement programs in decreasing fuel tax evasion. Potential sources include: the FTA's best practices research being conducted under the direction of the Uniformity/Enforcement Subcommittee, data provided by motor fuel tax administrators in the states and provinces that border Montana, and information gathered through other contacts and interviews conducted for this research program. As part of another ongoing research program, representatives from the Battelle Team plan to interview motor fuel tax administrators at meetings of the Joint Federal/State Motor Fuel Tax Enforcement Task Forces and the uniformity meetings of the FTA. Information acquired during these meetings can be used to support this project. Additional targets for interviews include state department of transportation and department of revenue representatives, the American Petroleum Institute, FHWA, IRS, and representatives of the oil industry or trade associations. The data required for this task will be collected during the interviews conducted under Task 2.

To examine the impact of public awareness campaigns on evasion, the Battelle Team will examine both quantitative -- estimates provided by tax administrators and before-after snapshots of states where major public awareness and involvement campaigns were initiated -- and qualitative -- affects articulated by tax administrators, representatives of the petroleum industry and federal agents -- impacts. Any court cases with bearing on this task will also be documented. Finally, the Battelle Team will examine the minutes and other literature relating to the Joint Federal/State Motor Fuel Tax Compliance Project and will, to the extent feasible, document its affects on national motor fuel tax compliance.

Task 10 – Based on all tasks, make recommendations on how the current fuel tax program be modified to decrease the amount of tax evasion within the State of Montana. Submit an implementation plan to support the recommendations.

The Battelle Team will offer practical recommendations to reduce motor fuel tax evasion and, thus, enhance revenue collection. Any points within the distribution chain where theft is occurring or might occur will be identified and solutions for reducing evasion will be proposed. Recommendations will include recommended changes in tax code and enforcement programs required to devise legislative agendas for reducing motor fuel excise tax evasion, and administrative changes required to design more effective and enforceable state motor fuel tax administrative programs.

The Battelle Team will document the research products with a stand-alone executive summary. A draft final report will be prepared that provides a background of the motor fuel tax evasion issue, synthesizes state enforcement and administration practices, examines data reporting procedures that can be used to assist in the tracking of motor fuel distribution throughout the State of Montana, identifies the techniques used to evade motor fuel taxes

and where in the distribution system each technique would occur, offers estimates of motor fuel tax evasion in Montana and notes strategies and methods for reducing tax evasion. The following are considered the major components of the final report:

- Executive summary
- Background and overview of motor fuel tax evasion issue
- Synopsis of current codes in Montana
- State enforcement and compliance practices in Montana and bordering states and provinces
- Fuel distribution system in Montana and bordering states and provinces
- Evaluation of evasion schemes
- Estimates of evasion in Montana
- Best practices in enforcement and compliance methods
- Evaluation of proposed enforcement and compliance methods
- Final recommendations
- Appendix A: Glossary
- Appendix B: Annotated Bibliography

The draft final report will be submitted to the project review panel for review and comments. A final report will then be prepared that incorporates the comments and suggestion of the review panel. The Battelle Team will also present research findings to the review panel upon completion of the project.

Deliverables: Draft report, final report, and presentation of research results. Submit an implementation plan to support the recommendations.

Anticipated Research Results and Implementation Plan

The anticipated results of this project will be documented in a final report with a stand-alone executive summary. The following are important elements of the results of the research:

- Methodology for estimating evasion and evasion estimate for motor fuel excise taxes, including those imposed on gasoline, gasohol, diesel, kerosene, aviation fuel, propane and natural gas
- Examination of proposed changes to current motor fuel tax compliance program that could reduce evasion, including potential improvements to the tax code
- GIS mapping of region's motor fuel distribution system
- Report documenting:
  - Background and overview of motor fuel tax evasion issue
  - Synopsis of current codes in Montana
  - State enforcement and compliance practices in Montana and bordering states and provinces
  - Fuel distribution system in Montana and bordering states and provinces
  - Evaluation of evasion schemes
  - Estimates of evasion in Montana
  - Best practices in enforcement and compliance methods
  - Evaluation of proposed enforcement and compliance methods
  - Final recommendations

Potential Markets

The above research will provide the framework for examining motor fuel tax evasion in Montana. Potential markets of the research results include MDT, the Montana Department of Revenue, Montana State Legislature and legislative committees, firms in the oil industry, representatives of the trucking industry and tax administrators in Montana border states and provinces. The results of this research project will provide tax administrators and other interested parties with the information, including recommended changes in tax code and enforcement programs, required to devise legislative agendas for reducing motor fuel excise tax evasion and design more effective and enforceable state motor fuel tax administrative programs.

Potential Impediments

Technology, skill, and data limitations (e.g., data comprehension, data availability, economic modeling complexity, sophistication of evasion techniques) may be a limitation. Data may be the most significant limitation, due to the lack of available data in certain instances or significant and irreconcilable differences in the data collected by various state and federal agencies. As part of previous work conducted for the IRS, the Battelle Team has identified many cases where there are large and undefined differences in the methods used to collect data by state and federal agencies. Thus, the methods used to collect and examine fuel consumption and fuel supply data vary from agency to agency, with direct consequences to the adequacy of the methods developed in this research effort. To assist in the effective implementation of this research effort, the final report will document such data shortcomings and will provide recommendations for dealing with data limitations.

Leadership and Activities in Applying the Product

Tasks 2, 3, and 9 of this research project are intended to provide input and feedback from motor fuel tax administrators and other compliance officials. Tasks 4 and 5 will involve representatives of the petroleum industry. Thus, there will be a built-in audience familiar with the project and interested in the application of its findings. The Battelle Team will work with this group to address any questions or issues raised concerning this project, while it is ongoing. Leadership in implementing the results of this research effort will likely fall on the MDT Fuel Tax Management and Analysis Bureau, in cooperation with the aforementioned compliance officials and petroleum industry representatives.

Furthermore, potential means of advancing the utilization of the products produced for this research effort could include hosting sessions at the year 2006 Transportation Research Board (TRB) meetings and offering workshops at the Joint Federal/State Motor Fuel Tax Enforcement Task Forces and Uniformity Committee Meetings of the Federation of Tax Administrators. MDT staff or the Battelle Team could host these sessions. Note, however, that such sessions are outside the current scope and budget of this research project.

Criteria for Judging the Progress and Consequences of Implementation

The findings and activities of this research project could present several opportunities for tangible and measurable improvement in motor fuel tax administrative and enforcement

programs. Following the successful completion of this research project, the progress and consequences of implementation could be judged by the following criteria:

- Growth in funding for enforcement programs and implementation of changes to existing programs. Provided that decision-makers perceive the research findings as providing real benefits to state enforcement officers, additional funds for enforcement programs could be committed and new enforcement programs established. The report will enable the administration and enforcement officers to estimate the impact of proposed programs on enhanced revenue. The findings of this research effort could provide extremely useful information for results-oriented decision-makers.
- Legislative advancement. Once the methods and tools have been successfully implemented and the final report has been disseminated to representatives in Montana state government, the information obtained in Tasks 3 and 10 in combination with the ability of the tax administrators to assess the benefits of enforcement policy (e.g., point of taxation, on-road inspections, taxing blending fuels) should result in the advancement of enforcement-related legislative agendas in the Montana State Legislature.
- Accelerated growth of state motor fuel tax revenue. Following the implementation of study recommendations through legislative agendas and enhanced enforcement efforts, the ultimate success of this project could be measured in the growth of motor fuel tax revenue at rates that exceed those forecast based on growth in the demand for motor fuel. Such extraordinary growth could result from reduced evasion through the success of enhanced enforcement and compliance activities.

Project Work Schedule

Figure 3 demonstrates that the work for this project will be performed over 16 months. The estimated start date for the project is July 1, 2004. The project schedule includes four weeks of technical panel review for the draft final report and an additional two weeks of review for the second delivery of the draft final report.

Other Commitments of the Research Team

Table 4 contains a listing of current and projected organization and personnel commitments to other work for individuals assigned to the proposed project. With the level of effort proposed for each project member, all staff have sufficient time to fulfill their commitment to this project. Projects that are not part of an individual's present workload but are expected to commence during the proposed project timeframe are included in parenthesis and figured into the percent of time available to perform other work during the proposed project period of performance.

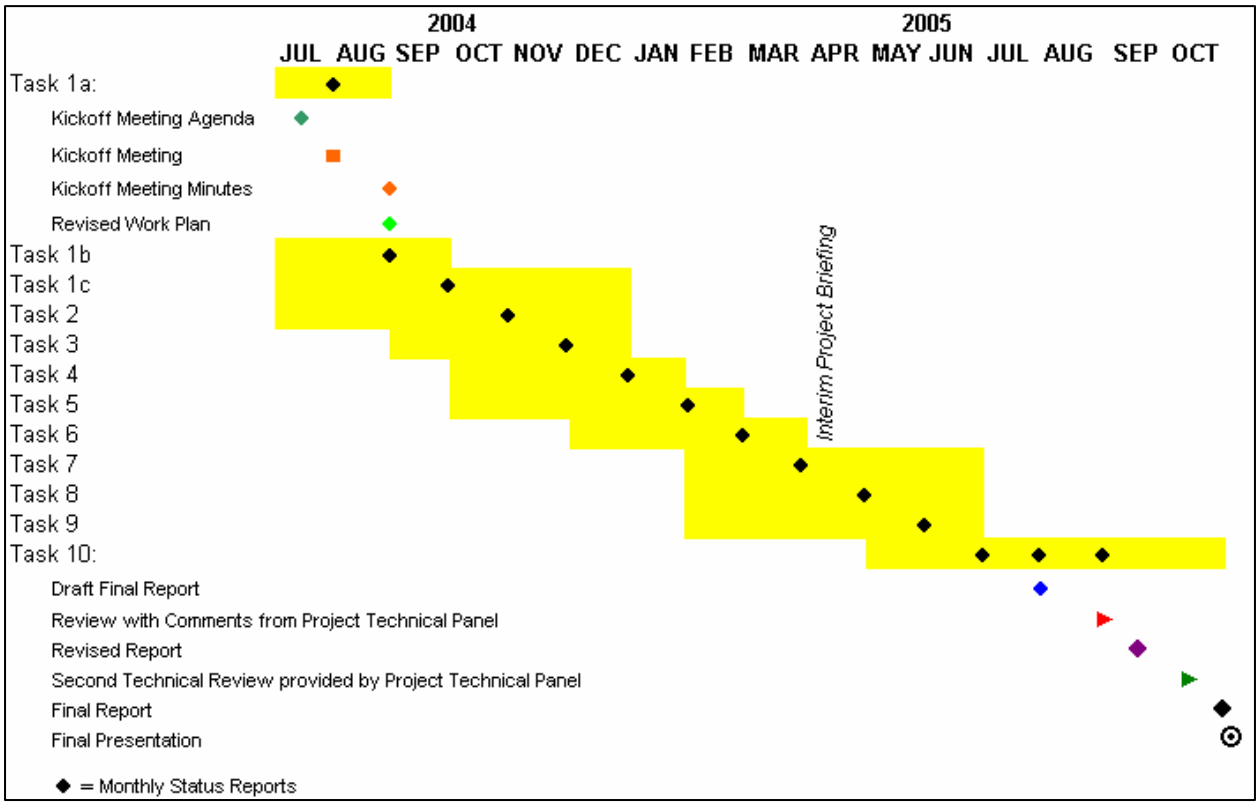

Figure 3 – Project Schedule and Deliverables

Table 4 – Other Commitments of the Battelle Team

Team Member	Organization	Other Major Projects, Current and (Projected), During the Period of Performance	Percent of Time Devoted to Other Work (Projected over 16-Month Project Timeframe)	Hours Budgeted for this Project
Patrick Balducci	Battelle	FHWA Motor Fuel Tax Evasion, Puget Sound Fare Card ITS Evaluation, (NCHRP Motor Fuel Tax Evasion)	50	618
Mark Weimar	Battelle	U.S. Internal Revenue Service Fuel Excise Tax Data Analysis Center, Transaction Anomaly Detection Project, National Visual Analytics Center, (NCHRP Motor Fuel Tax Evasion)	50	200
Marina Melchiorre	Battelle	FHWA: National Bridge Formula, Exclusive Truck Lanes, Strategic Multimodal Analysis, NHPN GIS, Motor Fuel Tax Evasion	70	360
Debra Schoenfeld	Montana State University	Prof. of Tax and Business Law at MSU-Billings	70	230
Edward Fekpe	Battelle	FHWA: Strategic Analysis of Multimodal Transportation Policy Options, Rail Capacity Analysis, Update of the Highway Revenue Forecasting Model, Exclusive Truck Lanes, New Bridge Formula, Traffic Data Quality Measurements	95	24

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